CLAIMS

1. A fluid management system, comprising

a first chamber having a central axis and an a-semicircular, constant curve cross-sectional geometry, wherein said cross-section is taken in the direction perpendicular to a central axis.

2. A fluid management system as in Claim 1, wherein said first chamber has an inner width to inner height ratio of greater than or equal to 0.5 to about 3.0.

3. A fluid management system as in Claim 2, wherein said ratio is about 1.0 to about 2.5.

4. A fluid management system as in Claim 3, wherein said ratio is about 1.5 to about 2.0.

5. A fluid management system as in Claim 1, wherein said inner height is up to about 49% of a major axis associated with an acircular shape which would form said cross-sectional geometry.

6. A fluid management system as in Claim 5, wherein said height is about 44% to about 48% of said major axis.

7. A fluid management system as in Claim 1, further comprising a flange extending outward from a base of said first chamber, and a support member disposed longitudinally on said flange.

8. A fluid management system as in Claim 7, wherein said support member spans two or more of said corregations.

9. A fluid management system as in Claim 8, wherein said support member is disposed intermittently on said flange.

10. A fluid management system as in Claim 7, further comprising connecting elements disposed between said corregations and said support member.

11. A fluid management system as in Claim 1, further comprising a flange extending outward from a base of said first chamber, and connecting elements disposed on said flange, perpendicular to a longitudinal axis of said first chamber.

12. A fluid management system as in Claim 1, wherein said first chamber comprises a material selected from the group consisting of thermoplastic materials, thermoset materials and mixtures comprising at least one of the foregoing.

13. A fluid management system as in Claim 12, wherein said first chamber comprises polyolefin.

14. A fluid management system as in Claim 12, wherein said first chamber comprises a material selected from the group consisting of polyetherimide, polyethylene, and mixtures comprising at least one of the foregoing.

15. A fluid management system as in Claim 12, wherein said first chamber comprises polypropylene.

16. A fluid management system as in Claim 14, wherein said material has a flexural modulus of about 500 MPa or greater as determined using ASTM method D-790.

17. A fluid management system as in Claim 16, wherein said flexural modulus of about 800 MPa to about 3,000 MPa.

18. A fluid management system as in Claim 17, wherein said flexural modulus of about 900 MPa to about 2,300 MPa.

19. A fluid management system as in Claim 1, further comprising a plurality of corregations which form a plurality of peaks and valleys, said corregations disposed perpendicular to a major axis of said first chamber.

20. A fluid management system as in Claim 1, wherein said corregations have sides oriented at an angle of up to about 45° with relation to a centerline of the corregation.

21. A fluid management system as in Claim 20, wherein said corregations angle is about 3° to about 35°.

22. A fluid management system as in Claim 21, wherein said corregations angle is about 5° to about 25°.

23. A fluid management system as in Claim 1, further comprising one or more supporting element(s) on said flange, disposed parallel to the length of said first chamber; and one or more connecting member(s) disposed on said flange, between said supporting element(s) and said first chamber, at an orientation perpendicular to said supporting element(s) and said first chamber.

24. A fluid management system as in Claim 1, further comprising one or more endplates disposed at one or both ends of said first chamber.

25. A fluid management system as in Claim 24, wherein said endplate has a width to height ratio of up to about 3.

26. A fluid management system as in Claim 25, wherein said ratio is about 1.25 to about 2.

27. A fluid management system as in Claim 1, further comprising subsequent chambers in fluid communication with said first chamber, wherein said first chamber has an endplate disposed at an end of said first chamber opposite said subsequent chambers.

28. A fluid management system as in Claim 27, further comprising a baffle having an opening to allow fluid passage through said baffle, wherein said first chamber and one of said subsequent chambers overlaps to form an overlapping section, and said baffle is disposed in said overlapping section.

29. A fluid management system as in Claim 28, wherein said first chamber and subsequent chambers are disposed in the ground with at least about 18 inches of compacted cover disposed over said first chamber and said subsequent chambers, wherein said cover is selected from the group consisting of sand, clay, soil, gravel, stone, or a combination comprising at least one of the foregoing covers, and wherein the fluid management system has a safety rating of greater than or equal to about 1.95 under AASHTO H-20.

30. A method of fluid management, comprising:

disposing a plurality of chambers at least about 6 inches below the surface of the ground, said chambers each having a central axis and an a-semicircular, constant curve cross-sectional geometry, wherein said cross-section is taken in the direction perpendicular to the central axis.

31. A method of fluid management as in Claim 30, wherein said chambers have an inner width to inner height ratio of about 0.5 to about 3.0.

32. A method of fluid management as in Claim 31, wherein said ratio is about 1.0 to about 2.5.

33. A method of fluid management as in Claim 32, wherein said ratio is about 1.5 to about 2.0.

34. A method of fluid management as in Claim 30, wherein said height is up to about 49% of a major axis associated with an acircular shape which would form said cross-sectional geometry.

35. A method of fluid management as in Claim 34, wherein said height is about 44% to about 48% of said major axis.